

REMARKS

Claims 1-20 were examined and rejected. Claims 21-25 have been previously canceled. Applicant amends claim 1 and adds additional claim 26. Applicant submits that no new matter has been added herein. Applicant respectfully requests reconsideration of claims 1-20 as amended and consideration of additional claim 26 in view of at least the following remarks.

I. Claims Rejected Under 35 U.S.C. §102

The Patent Office rejects Claims 1, 5, 6, and 10 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,873,835 to Hastings, et al. ("Hastings"). It is axiomatic to be anticipated, every element of the claim must be disclosed within a single reference.

Applicant respectfully disagrees with the rejection of independent claim 1 and submits that claim 1 as amended is allowable for at least the reason that Hastings does not describe a balanced circuit that measures "a first differential resistance between the heating element and the variable resistor in response to a first condition and a second differential resistance in response to a second condition in circuitry to indicate a change of conditions related to a distance of penetration of the thermally conductive heating element into a tissue," as required by amended independent claim 1. Specifically, according to amended claim 1, for example, a balanced circuit may balance the resistance of a heating element as compared to the resistance of a variable resistor to measure the distance that the heating element has penetrated into tissue of a human body.

On the other hand, Hastings discloses a device for measuring blood pressure and flow that is calibrated by withdrawing the sensor coil into a sheath to a calibration position, then taking a static blood temperature measurement by delivering current pulses to the sensor coil to determine body temperature at the calibration site, and then setting the value of resistor divider 264 to the coil resistance measured during the calibration. (See column 13, lines 28-65) Specifically, Hastings teaches setting the value

of resistor divider 264 according to the resistance measurement of the coil while the coil is withdrawn to a calibration position within a sheath.

Consequently, the Patent Office has not identified and Applicant is unable to find any description in Hastings of a balanced circuit having a variable resistor and configured to measure a distance of penetration of a heating element into tissue, as required by Applicant's amended claim 1. Hence Applicant respectfully requests that the Patent Office withdraw the rejection of amended independent claim 1 under 35 U.S.C. § 102(b) as being anticipated by Hastings.

Applicant submits that dependent claims 5, 6 and 10 being dependent upon allowable base claim 1, as amended, are patentable over the cited references for at least the reasons explained above. Thus, Applicant respectfully requests that the Patent Office withdraw the rejection of dependent claims 5, 6 and 10 under 35 U.S.C. § 102(b) as being unpatentable.

I. Claims Rejected Under 35 U.S.C. §103

The Patent Office rejects Claims 1-3, 5-9, 11-12, 14-17, and 19-20 under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,431,010 to Joffe ("Joffe") in view of U. S. Patent No. 5,493,906 to Sen-Zhi ("Sen-Zhi"). To render a claim obvious, all elements of that claim must be taught or suggested by at least one properly combined reference.

Applicant respectfully disagrees with the rejection above and submits that independent claims 1 and 11, as amended, are patentable over the cited references for at least the reason that Sen-Zhi cannot be properly be combined with Joffe . Joffe teaches a fluid flow monitoring device having tips of an optical fiber and tips of a thermocouple embedded in a black, optically opaque, light absorbing, thermally conductive epoxy to measure the voltage produced by the thermocouple when the epoxy is heated with energy from a laser provided via the optical fiber. (See column 2 lines 35-43, and abstract) On the other hand, Sen-Zhi teaches an electrical control circuit for a constant temperature anemometer that balances an electrical signal flowing through two resistors. (See column 3 lines 22-30). Thus, the electrical control circuit of Sen-Zhi

cannot be combined with the light absorbing epoxy heated by the laser energy of Joffe because the combination would defeat the principal of operation of Joffe of heating a light absorbing thermally conductive epoxy with laser energy provided via an optical fiber in order to measure the voltage in the epoxy via a couple. Specifically, while the balanced electrical control circuit of Sen-Zhi is based on balancing an electrical signal flowing through two resistors, that electrical signal cannot be combined with Joffe because to do so would defeat the principal of operation of Joffe which is based on using light energy of a laser to heat light absorbing epoxy to create a voltage in a thermocouple attached to the epoxy. (See MPEP § 2145.X.D). Hence, Applicant respectfully requests that the Patent Office withdraw the rejection of independent claims 1 and 11, as amended, for at least this first reason.

In addition, Applicant asserts that the combination of Joffe and Sen-Zhi is the result of impermissible hindsight in accordance with MPEP § 2145.X.A. Specifically, since Joffe does not motivate a source of an electrical signal to flow a current through epoxy 8, as would be necessary to combine Joffe with Sen-Zhi. Thus, Applicant can only conclude that the motive to use the electrical control circuit of Sen-Zhi having drive voltage E applied to drive terminal 76 (see column 5 lines 39-41) to replace the feedback loop that includes laser 14 to heat epoxy 8 to provide a voltage at thermocouple 2 (see column 3 lines 21-36) includes knowledge gleaned only from Applicant's disclosure. Hence, for at least this second reason, Applicant respectfully requests the Patent Office withdraw the above rejection of independent claims 1 and 11, as amended.

Applicant submits that dependent claims 2-10, and 12-20 being dependent upon allowable base claims 1 and 11 are patentable over the cited references for the reasons explained above. Thus, Applicant respectfully requests that the Patent Office withdraw the rejection of dependent claims 2-10 and 12-20 under 35 U.S.C. § 103(a) as being unpatentable over the cited references.

Furthermore, in addition to the reasons given above with respect to claim 11, Applicant respectfully disagrees with the rejection above for claim 19 because the cited references do not teach or suggest an amplifier electrically coupled to a circuit to sense a difference in voltage dropped across the heating element and the variable resistor and

to input the amplified voltage difference back to the circuit to cause the heating element to assume a second resistance, as required by claim 19. Specifically, the feedback loop of Joffe replaced by the electrical control circuit of Sen-Zhi does not teach inputting an amplified voltage difference in voltage drop across a heating element and a variable resistor to cause the heating element to assume a second resistance because Joffe does not measure the resistance of epoxy 8, but instead derives a voltage from thermocouple 2 attached to epoxy 8. Hence, Applicant respectfully requests that the Patent Office withdraw the rejection of claim 19 for at least this second reason.

In addition to the reasons give above with respect to claim 11, Applicant respectfully disagrees with the rejection of claim 20 because the cited references do not teach or suggest a plurality of heating elements coupled along a length of an elongated member and anemometry circuitry separately coupled to the heating element to determine injection depth or tissue type, as required by claim 20. Specifically, Applicant traverses that the above noted limitations of claim 20 are a duplication of components as argued by the Patent Office and request that the Patent Office cite a reference to address the limitations of claim 20 pointed out above, in accordance with MPEP § 21444.03. More particularly, Applicant requests that the Patent Office cite a reference to support multiple heating elements and anemometry circuitry to determine injection depth or tissue type, as required by claim 20. Hence, for at this second reason, Applicant respectfully requests that the Patent Office withdraw the rejection of claim 20.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 11, 2004.

Jean Svoboda 